

CHAPTER 6

FUTURE DIRECTIONS IN THE SOUTH FORK HOLSTON RIVER WATERSHED

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6.1. BACKGROUND.

The Watershed Water Quality Management Plan serves as a comprehensive inventory of resources and stressors in the watershed, a recommendation for control measures, and a guide for planning activities in the next five-year watershed cycle and beyond. Water quality improvement will be a result of implementing both regulatory and nonregulatory programs.

In addition to the NPDES program, some state and federal regulations, such as the TMDL and ARAP programs, address point and nonpoint issues. Construction and MS4 stormwater rules (implemented under the NPDES program) are transitioning from Phase 1 to Phase 2. More information on stormwater rules may be found at: <http://www.state.tn.us/environment/wpc/stormh2o/MS4.htm>.

This Chapter addresses point and nonpoint source approaches to water quality problems in the South Fork Holston River Watershed as well as specific NPDES permit information.

6.2. COMMENTS FROM PUBLIC MEETINGS. Watershed meetings are open to the public, and most meetings were represented by citizens who live in the watershed, NPDES permittees, business people, farmers, and local river conservation interests. Locations for meetings were frequently chosen after consulting with people who live and work in the watershed. Everyone with an interest in clean water is encouraged to be a part of the public meeting process. The times and locations of watershed meetings are posted at: <http://www.state.tn.us/environment/wpc/public.htm>.

6.2.A. Year 1 Public Meeting. The first South Fork Holston River Watershed public meeting was held April 9, 1997 in Bristol. The goals of the meeting were to 1)present, and review the objectives of, the Watershed Approach, 2)introduce local, state, and federal agency and nongovernment organization partners, 3)review water quality monitoring strategies, and 4)solicit input from the public.

Major Concerns/Comments

- ◆ Need to work with all agencies to control Nonpoint sources of pollution
- ◆ EPA or TVA needs to reduce pollution from neighboring states (Virginia)
- ◆ Need better water quality standards for lakes
- ◆ Effect of lawsuits on Tennessee
- ◆ Effect of Watershed Approach on permit limits
- ◆ Business growth opportunities in watershed plans

6.2.B. Year 3 Public Meeting. The second South Fork Holston River Watershed public meeting was held July 29, 1999 at the Bristol Municipal Building. The goals of the meeting were to 1)provide an overview of the watershed approach, 2)review the monitoring strategy, 3)summarize the most recent water quality assessment, 4)discuss the TMDL schedule and citizens' role in commenting on draft TMDLs, and 5)discuss BMPs and other nonpoint source tools available through the Tennessee Department of Agriculture 319 Program and NRCS conservation assistance programs.

Major Concerns/Comments

- ◆ Pollution from Virginia (Beaver Creek) affects Tennessee waters
- ◆ Attendance at meetings and advertising meeting dates needs improvement
- ◆ 303(d)-listed streams need TMDLs now

6.2.C. Year 5 Public Meeting. The third scheduled South Fork Holston River Watershed public meeting was held October 28, 2003 at the Sullivan County Regional Health Center. The meeting featured eight educational components:

- Overview of draft Watershed Water Quality Management Plan slide show
- Benthic macroinvertebrate samples and interpretation
- SmartBoard™ with interactive GIS maps
- “How We Monitor Streams” self-guided slide show
- “Why We Do Biological Sampling” self-guided slide show
- Citizen Group Displays (Boone Lake Association, Kingsport Tomorrow, Beaver Creek Watershed Alliance, Holston River Alliance, Friends of Fort Patrick Henry Lake)
- Tennessee Valley Authority display
- University display (East Tennessee State University)

In addition, citizens had the opportunity to make formal comments on the draft Watershed Water Quality Management Plan and to rate the effectiveness of the meeting.

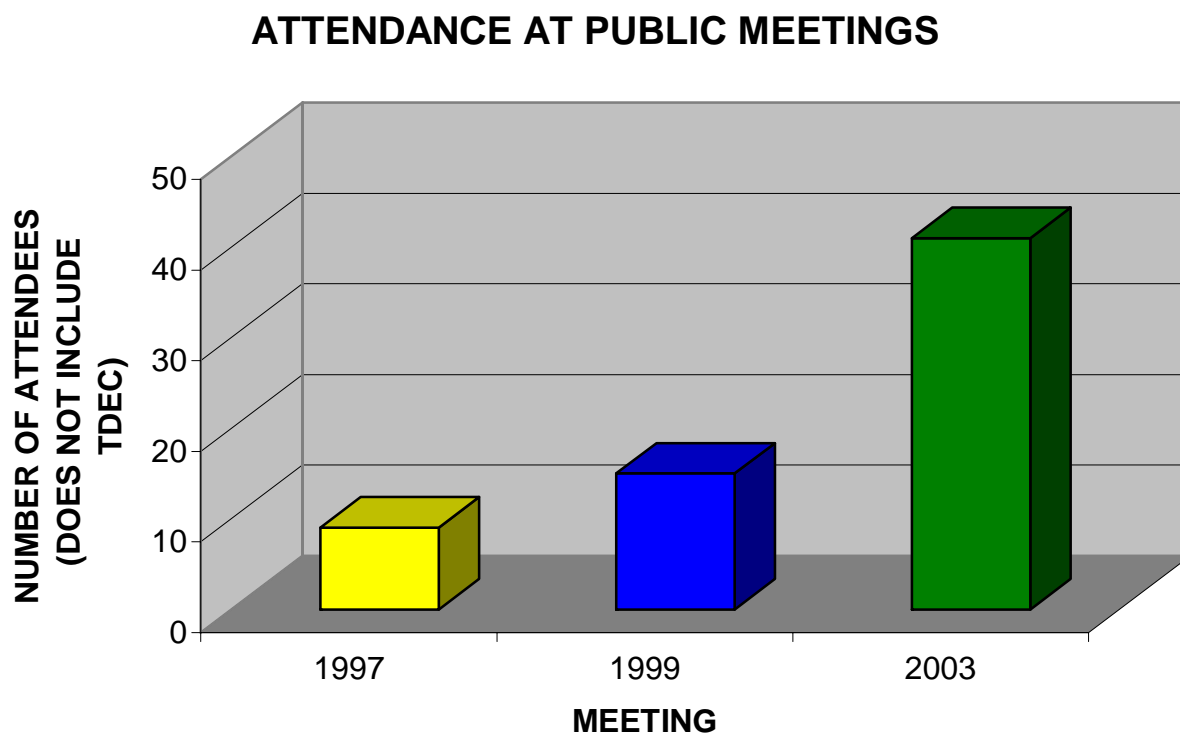


Figure 6-1. Attendance at Public Meetings in the South Fork Holston River Watershed.



Figure 6-2. Informal discussions are important in meeting citizens' interest in understanding Water Pollution Control's activities in the watershed, and in communicating to the Department any concerns they might have.

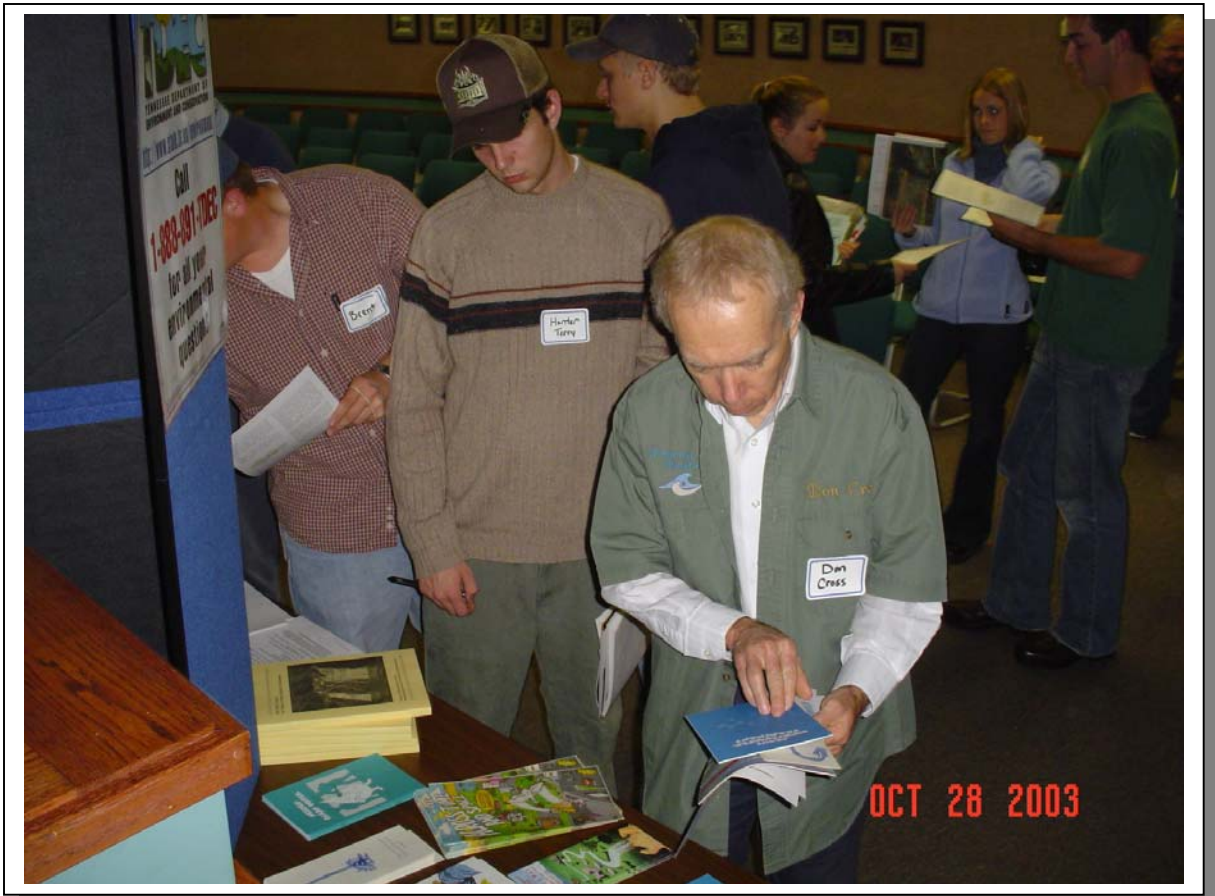


Figure 6-3. Free literature taken by public meeting attendees help communicate TDEC's activities to meeting participants.



Figure 6-4. Students learn about the relationship between aquatic insects and water quality at the watershed public meetings.

6.3. APPROACHES USED.

6.3.A. Point Sources. Point source contributions to stream impairment are primarily addressed by NPDES and ARAP permit requirements and compliance with the terms of the permits. Notices of NPDES and ARAP draft permits available for public comment can be viewed at <http://www.state.tn.us/environment/wpc/wpcppo/>. Discharge monitoring data submitted by NPDES-permitted facilities may be viewed at http://www.epa.gov/enviro/html/pes/pes_query_java.html.

The purpose of the TMDL program is to identify remaining sources of pollution and allocate pollution control needs in places where water quality goals are still not being achieved. TMDL studies are tools that allow for a better understanding of load reductions necessary for impaired streams to return to compliance with water quality standards. More information about Tennessee's TMDL program may be found at: <http://www.state.tn.us/environment/wpc/tmdl.php>

TMDLs are prioritized for development based on many factors.

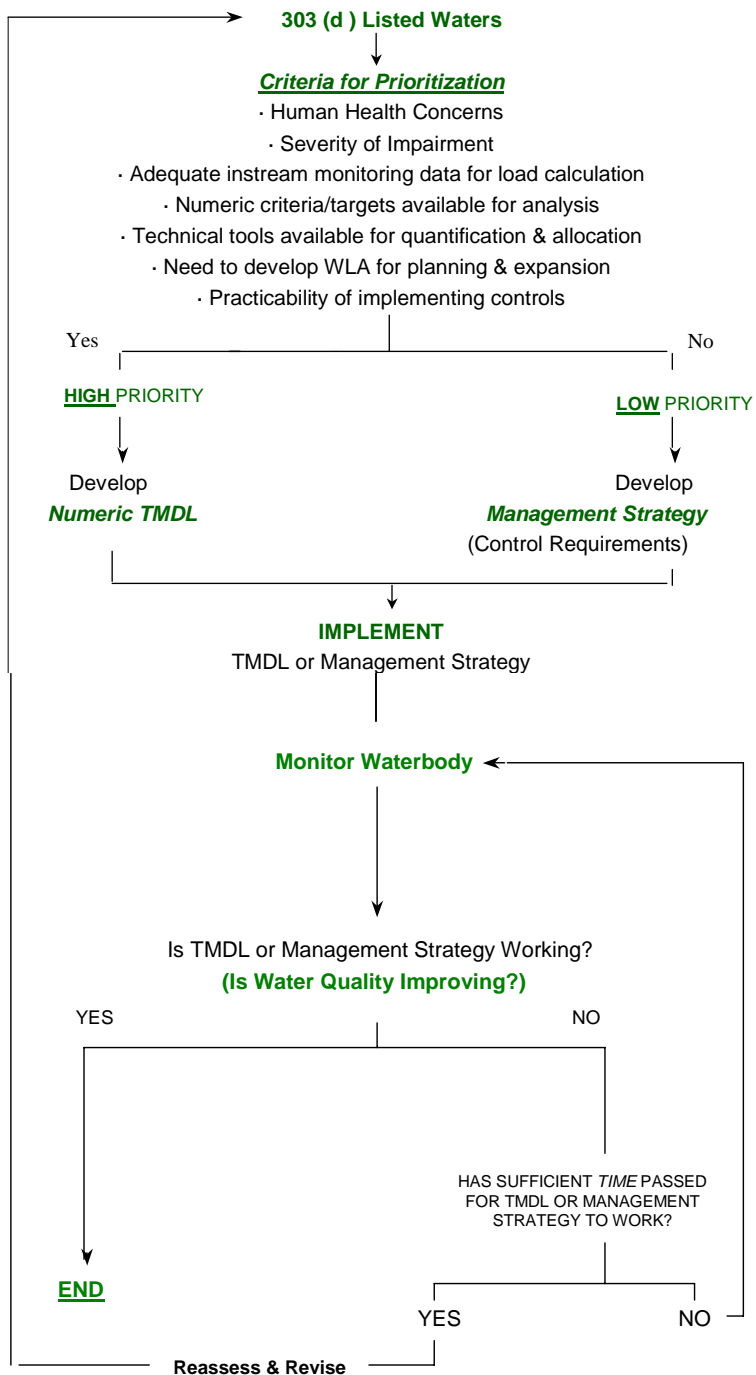


Figure 6-5. Prioritization scheme for TMDL Development.

6.3.B. Nonpoint Sources

Common nonpoint sources of pollution include urban runoff, riparian vegetation removal, and inappropriate land development, agricultural, and road construction practices. Since nonpoint pollution exists essentially everywhere rain falls and drains to a stream, existing point source regulations can have only a limited effect, so other measures are necessary.

There are several state and federal regulations that address some of the contaminants impacting waters in the South Fork Holston River watershed. Most of these are limited to only point sources: a pipe or ditch. Often, controls of point sources are not sufficient to protect waters, so other measures are necessary. Some measures include voluntary efforts by landowners and volunteer groups, while others may involve new regulations. Many agencies, including the Tennessee Department of Agriculture and NRCS, offer financial assistance to landowners for corrective actions (like Best Management Practices) that may be sufficient for recovery of impacted streams. Many nonpoint problems will require an active civic involvement at the local level geared towards establishment of improved zoning guidelines, building codes, streamside buffer zones and greenways, and general landowner education.

The following text describes certain types of impairments, causes, suggested improvement measures, and control strategies. The suggested measures and streams are only examples and efforts should not be limited to only those streams and measures mentioned.

6.3.B.i. Sedimentation.

6.3.B.i.a. From Construction Sites. Construction activities have historically been considered “nonpoint sources.” In the late 1980’s, EPA designated them as being subject to NPDES regulation if more than 5 acres are disturbed. In the spring of 2003, that threshold became 1 acre. The general permit issued for such construction sites sets out conditions for maintenance of the sites to minimize pollution from stormwater runoff, including requirements for installation and inspection of erosion controls. Also, the general permit imposes more stringent inspection and self-monitoring requirements on sites in the watershed of streams that are already impaired due to sedimentation. Examples in the Group 2 portion of the South Fork Holston River Watershed are Back Creek and Muddy Creek. Regardless of the size, no construction site is allowed to cause a condition of pollution.

Construction sites within a sediment-impaired watershed may also have higher priority for inspections by WPC personnel, and are likely to have enforcement actions for failure to control erosion

The same requirements apply to sites in the drainage of high quality waters. Beaver Dam Creek and Gentry Creek are examples of high quality streams in the Group 2 portion of the South Fork Holston River Watershed.

6.3.B.i.b. From Channel and/or Bank Erosion. Due to the past channelization of Back Creek and Beaver Creek, and other South Fork Holston River tributaries, the channels are unstable. Several agencies are working to stabilize portions of stream banks. These include NRCS and the Tennessee Valley Authority, as well as watershed citizen groups. Other methods or controls that might be necessary to address common problems are:

Voluntary activities

- Re-establishment of bank vegetation (example: Back Creek).
- Establish off channel watering areas for livestock by moving watering troughs and feeders back from stream banks (examples: tributaries of Back Creek, Beaver Creek, and Boone Lake).
- Limit cattle access to streams and bank vegetation (example: Beaver Creek).

Additional strategies

- Increase efforts in the Master Logger program to recognize impaired streams and require more effective management practices.
- Better community planning for the impacts of development on small streams, especially development in growing areas (examples: Muddy Creek, Beaver Creek, Cedar Creek, Paperville Creek, and Whitetop Creek).
- Limit livestock access to streams and bank vegetation (example: Beaver Creek).
- Restrictions requiring post construction run-off rates to be no greater than pre-construction rates in order to avoid in-channel erosion (examples: Muddy Creek, Beaver Creek, Cedar Creek, Paperville Creek, and Whitetop Creek).
- Additional restrictions on logging in streamside management zones.
- Prohibition on clearing of stream and ditch banks (examples: Paperville Creek, Beaver Creek, and Whitetop Creek). *Note: Permits may be required for any work along streams.*
- Additional restriction to road and utilities crossings of streams.
- Restrictions on the use of off-highway vehicles on stream banks and in stream channels.

6.3.B.i.c. From Agriculture and Silviculture. Even though there is an exemption in the Water Quality Control Act stating that normal agricultural and silvicultural practices that do not result in a point source discharge do not have to obtain a permit, efforts are being made to address impacts due to these practices.

The Master Logger Program has been in place for several years to train loggers how to plan their logging activities and to install Best management Practices that lessen the impact of logging activities. Recently, laws and regulations were enacted which established the expected BMPs to be used and allows the Commissioners of the Departments of Environment and Conservation and of Agriculture to stop a logging operation that has failed to install these BMPs and so are impacting streams. Any timber harvest in the North and Middle Forks of the Forked Deer Rivers are small and isolated.

Since the Dust Bowl era, the agriculture community has strived to protect the soil from wind and soil erosion. Agencies such as the Natural resources Conservation Service (NRCS), the University of Tennessee Agricultural Extension Service, and the Tennessee

Department of Agriculture have worked to identify better ways of farming, to educate the farmers, and to install the methods that address the sources of some of the impacts due to agriculture. Cost sharing is available for many of these measures. Buck Creek had already had several BMPs installed to address the sediment lost from fields in this watershed.

6.3.B.ii. Pathogen Contamination.

Possible sources of pathogens are inadequate or failing septic tank systems, overflows or breaks in public sewer collection systems, poorly disinfected discharges from sewage treatment plants, and fecal matter in streams and storm drains due to pets, livestock and wildlife. Permits issued by the Division of Water Pollution Control regulate discharges from point sources and require adequate control for these sources. Individual homes are required to have subsurface, on-site treatment (i.e., septic tank and field lines) if public sewers are not available. Septic tank and field lines are regulated by the Division of Ground Water Protection within the Johnson City Environmental Assistance Center and delegated county health departments. In addition to discharges to surface waters, businesses may employ either subsurface or surface disposal of wastewater. The Division of Water Pollution Control regulates surface disposal.

Other measures that may be necessary to control pathogens are:

Voluntary activities

- Off-channel watering of livestock (examples: tributaries of Back Creek, Beaver Creek and Boone Lake).
- Limiting livestock access to streams (examples: Back Creek and Steele Creek).
- Proper management of animal waste from feeding operations.

Enforcement strategies

- Greater enforcement of regulations governing on-site wastewater treatment.
- Timely and appropriate enforcement for non-complying sewage treatment plants, large and small, and their collection systems.
- Identification of Concentrated Animal Feeding Operations not currently permitted, and enforcement of current regulations.

Additional strategies

- Restrict development in areas where sewer is not available and treatment by subsurface disposal is not an option due to poor soils, floodplains, or high water tables.
- Discourage the creation of “duck ponding” that attracts waterfowl.
- Develop and enforce leash laws and controls on pet fecal material (example: Beaver Creek).
- Greater efforts by sewer utilities to identify leaking lines or overflowing manholes (example: Beaver Creek).

6.3.B.iii. Excessive Nutrients and/or Dissolved Oxygen Depletion.

These two impacts are usually listed together because high nutrients often contribute to low dissolved oxygen within a stream. Since nutrients often have the same source as pathogens, the measures previously listed can also address many of these problems. Elevated nutrient loadings are also often associated with urban runoff from impervious surfaces and from fertilized lawns and croplands.

Other sources of nutrients can be addressed by:

Voluntary activities

- Educate homeowners and lawn care companies in the proper application of fertilizers.
- Encourage landowners, developers, and builders to leave stream buffer zones (examples of streams that could benefit are Beaver Creek, Cedar Creek, Muddy Creek, and areas along stream channels). Streamside vegetation can filter out many nutrients and other pollutants before they reach the stream. These riparian buffers are also vital along livestock pastures.
- Use grassed drainage ways that can remove fertilizer before it enters streams.
- Use native plants for landscaping since they don't require as much fertilizer and water.

Physical changes to streams can prevent them from providing enough oxygen to biodegrade the materials that are naturally present. A few additional actions can address this problem:

- Maintain shade over a stream. Cooler water can hold more oxygen and retard the growth of algae. As a general rule, all stream channels suffer from some canopy removal.
- Discourage impoundments. Ponds and lakes do not aerate water. *Note: Permits may be required for any work on a stream, including impoundments.*

6.3.B.iv. Toxins and Other Materials.

Many materials enter our streams due to apathy, or lack of civility or knowledge by the public. Litter in roadside ditches, garbage bags tossed over bridge railings, paint brushes washed off over storm drains, and oil drained into ditches are all blatant examples of pollution in streams. Some can be addressed by:

Voluntary activities

- Providing public education.
- Painting warnings on storm drains that connect to a stream. (This would benefit Beaver Creek, Little Creek, and Cedar Creek).
- Sponsoring community clean-up days (This has already benefited Beaver Creek, Paperville Creek, Boone Lake, and South Holston Lake).
- Landscaping of public areas.
- Encouraging public surveillance of their streams and reporting of dumping activities to their local authorities.

Needing regulation

- Prohibition of illicit discharges to storm drains.
- Litter laws and strong enforcement at the local level.

6.3.B.v. Habitat Alteration.

The alteration of the habitat within a stream can have severe consequences. Whether it is the removal of the vegetation providing a root system network for holding soil particles together, the release of sediment, which increases the bed load and covers benthic life and fish eggs, the removal of gravel bars, “cleaning out” creeks with heavy equipment, or the impounding of the water in ponds and lakes, many alterations impair the use of the stream for designated uses. Habitat alteration also includes the draining or filling of wetlands.

Measures that can help address this problem are:

Voluntary activities

- Sponsoring litter pickup days to remove litter that might enter streams (Brush and Sinking Creeks have benefited from such cleanup efforts).
- Organizing stream cleanups removing trash, limbs and debris before they cause blockage.
- Avoiding use of heavy equipment to “clean out” streams (Back Creek and Beaver Creek have suffered from such activities).
- Planting vegetation along streams to stabilize banks and provide habitat (Steele Creek Park Lake, in the Bristol area, had three 1000-foot segments bio-engineered using matting and willow posts to revegetate).
- Encouraging developers to avoid extensive culverts in streams.

Current regulations

- Restrict modification of streams by such means as culverting, lining, or impounding.
- Require mitigation for impacts to streams and wetlands when modifications are allowed.

Additional Enforcement

- Increased enforcement may be needed when violations of current regulations occur.

6.4. PERMIT REISSUANCE PLANNING

Under the *Tennessee Water Quality Control Act*, municipal, industrial and other dischargers of wastewater must obtain a permit from the Division. Approximately 1,700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES). These permits establish pollution control and monitoring requirements based on protection of designated uses through implementation of water quality standards and other applicable state and federal rules.

The following three sections provide specific information on municipal, industrial, and water treatment plant active permit holders in the South Fork Holston River Watershed. Compliance information was obtained from EPA's Permit Compliance System (PCS). All data was queried for a five-year period between January 1, 2001 and December 31, 2006. PCS can be accessed publicly through EPA's Envirofacts website. This website provides access to several EPA databases to provide the public with information about environmental activities that may affect air, water, and land anywhere in the United States:

http://www.epa.gov/enviro/html/ef_overview.html

Stream Segment information, including designated uses and impairments, are described in detail in Chapter 3, *Water Quality Assessment of South Fork Holston River Watershed*.

6.4.A. Municipal Permits

TN0031640 USDA - Forest Service-Little Oak Recreation Area

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 8/31/07
Expiration Date: 9/30/07
Receiving Stream(s): South Holston Reservoir at the South Fork Holston River at mile 50.8
HUC-12: 060101020302
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Septic tank sand filter system

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	DMax Conc	mg/L	Monthly	Grab	Effluent
BOD5	All Year	30	MAvg Conc	mg/L	Monthly	Grab	Effluent
D.O.	All Year	1	DMin Conc	mg/L	Monthly	Grab	Effluent
E. coli	All Year	487	DMax Conc	#/100mL	Monthly	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	Monthly	Grab	Effluent
Flow	All Year		MAvg Load	MGD	3/Week	Instantaneous	Effluent
Flow	All Year		DMax Load	MGD	3/Week	Instantaneous	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	Monthly	Grab	Effluent
TRC	All Year	2	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Monthly	Grab	Effluent

Table 6-1. Permit Limits for USDA - Forest Service-Little Oak Recreation Area.

EFO Comments:

One (of two) loops has been closed all season this year because of an electrical outage. This should be repaired for next season, and discharge at both outfalls should be comparable to historical performance. EFO is unaware of any expansion plans.

TN0020745 USDA - Jacobs Creek Civilian Conservation Center

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 8/31/07
Expiration Date: 4/30/07
Receiving Stream(s): Little Jacob Creek at mile 2.0
HUC-12: 060101020302
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

Segment	TN060101020540_0400
Name	Little Jacob Creek
Size	6.9
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Domestic Water Supply (Supporting), Fish and Aquatic Life (Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	N/A
Sources	N/A

Table 6-2. Stream Segment Information for USDA - Jacobs Creek Civilian Conservation Center

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	1.5	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	Summer	0.75	MAvg Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	5.5	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	2.75	MAvg Conc	mg/L	2/Month	Grab	Effluent
CBOD5	Summer	20	DMax Conc	mg/L	2/Month	Grab	Effluent
CBOD5	Summer	10	MAvg Conc	mg/L	2/Month	Grab	Effluent
CBOD5	Winter	40	DMax Conc	mg/L	2/Month	Grab	Effluent
CBOD5	Winter	25	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	487	DMax Conc	#/100mL	2/Month	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Flow	All Year		MAvg Load	MGD	Weekdays	Instantaneous	Effluent
Flow	All Year		DMax Load	MGD	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	0.02	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	9	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-3. Permit Limits for USDA - Jacobs Creek Civilian Conservation Center.

Enforcement:

Director's Order #05-046D

Order issued for effluent violations, in-plant bypasses and overflows. New WWTP (trickle filter) will be the likely solution.

EFO Comments:

This facility is currently under Director's Order #05-046D. They are finishing up an I/I study and collection system repair/rehabilitation/replacement should follow. Wastewater treatment plant replacement is planned to follow in turn. The latest proposal for WWTP replacement was use of AdvanTex recirculating filters in place of the current extended aeration treatment technology. They were not planning an increase in flow, but that may have changed.

TN0027529 TVA South Holston Hydro-Electric Plant

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 6/30/02
Expiration Date: 6/30/07
Receiving Stream(s): South Fork Holston River at mile 49.8
HUC-12: 060101020401
Effluent Summary: Cooling water from Outfall 001
Treatment system: -

Permit Limits:

No limits

EFO Comments:

An oil/water separator was installed at the TVA South Holston Hydroelectric Plant for the switchyard and transformer yard stormwater runoff.

TN0023531 Bristol Sewage Treatment Plant #2

Discharger rating: Major
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 4/26/04
Expiration Date: 4/30/09
Receiving Stream(s): Boone Lake
HUC-12: 060101020403
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: WAS to blend tank to fpress to invessel composting Class A.

Segment	TN06010102006_1000
Name	Boone Reservoir
Size	4400
Unit	Acres
First Year on 303(d) List	1990
Designated Uses	Domestic Water Supply (Supporting), Fish and Aquatic Life (Supporting), Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Chlordane, Polychlorinated biphenyls
Sources	Contaminated Sediments

Table 6-4. Stream Segment Information for Bristol STP #2

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer		MAvg Conc	mg/L	Bi-monthly	Composite	Effluent
Ammonia as N (Total)	Winter		MAvg Conc	mg/L	Monthly	Composite	Effluent
BOD % removal	All Year	40	DMin % Removal	Percent	Daily	Calculated	% Removal
BOD % removal	All Year	85	MAvg % Removal	Percent	Daily	Calculated	% Removal
BOD5	All Year	45	DMax Conc	mg/L	Daily	Composite	Effluent
BOD5	All Year	30	MAvg Conc	mg/L	Daily	Composite	Effluent
BOD5	All Year	40	WAv Conc	mg/L	Daily	Composite	Effluent
BOD5	All Year	3753	MAvg Load	lb/day	Daily	Composite	Effluent
BOD5	All Year	5004	WAv Load	lb/day	Daily	Composite	Effluent
D.O.	All Year	1.5	DMin Conc	mg/L	Daily	Grab	Effluent
Dissolved Solids, Total (TDS)	All Year		MAvg Conc	mg/L	Annually	Continuous	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	Daily	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	Daily	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	Daily	Grab	Effluent
Flow	All Year		DMax Load	MGD	Daily	Continuous	Effluent
Flow	All Year		MAvg Load	MGD	Daily	Continuous	Influent (Raw Sewage)

Table 6-5a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		DMax Load	MGD	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MAvg Load	MGD	Daily	Continuous	Effluent
IC25 7day Ceriodaphnia Dubia	All Year	14.2	DMin Conc	Percent	Annually	Composite	Effluent
IC25 7day Fathead Minnows	All Year	14.2	DMin Conc	Percent	Annually	Composite	Effluent
Nitrite + Nitrate Total (as N)	Summer		MAvg Conc	mg/L	Bi-monthly	Composite	Effluent
Nitrite + Nitrate Total (as N)	Winter		MAvg Conc	mg/L	Monthly	Composite	Effluent
Nitrogen Organic Total (as N)	All Year		MAvg Conc	mg/L	Annually	Continuous	Effluent
Nitrogen Total (as N)	All Year		MAvg Conc	mg/L	Annually	Continuous	Effluent
Phosphate Ortho (as PO4)	Summer		MAvg Conc	mg/L	Bi-monthly	Composite	Effluent
Phosphate Ortho (as PO4)	Winter		MAvg Conc	mg/L	Monthly	Composite	Effluent
Phosphorus, Total	Summer		MAvg Conc	mg/L	Bi-monthly	Composite	Effluent
Phosphorus, Total	Winter		MAvg Conc	mg/L	Monthly	Composite	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	Weekly	Composite	Effluent
TKN - Total Kjeldahl Nitrogen	Summer		MAvg Conc	mg/L	Bi-monthly	Composite	Effluent
TKN - Total Kjeldahl Nitrogen	Winter		MAvg Conc	mg/L	Monthly	Composite	Effluent
TOC	Summer		MAvg Conc	mg/L	Bi-monthly	Composite	Effluent
TOC	Winter		MAvg Conc	mg/L	Monthly	Composite	Effluent
TRC	All Year	0.31	DMax Conc	mg/L	Daily	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	30	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	40	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	3753	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS	All Year	5004	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	% Removal
pH	All Year	9	DMax Conc	SU	Daily	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Daily	Grab	Effluent

Table 6-5b.

Tables 6-5a-b. Permit Limits for Bristol STP #2.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 3 BOD
- 5 TSS
- 1 Chlorine
- 1 Fecal coliform

EFO Comments:

No issues.

TN0025135 East High School

Discharger rating: Minor
City: Bluff City
County: Sullivan
EFO Name: Johnson City
Issuance Date: 4/26/04
Expiration Date: 4/30/09
Receiving Stream(s): Unnamed tributary at mile 1.7 to South Fork Holston River at mile 39.1
HUC-12: 060101020402
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	10	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5	MAvg Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	40	DMax Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	25	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	0.5	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	8.5	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	2/Week	Grab	Effluent

Tables 6-6. Permit Limits for East High School

EFO Comments:
 None

TN0025178 Akard Elementary School

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 11/26/02
Expiration Date: 11/30/07
Receiving Stream(s): Unnamed tributary at mile 0.1 to Back Creek at mile 4.0
HUC-12: 060101020502
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	DMax Conc	mg/L	Monthly	Grab	Effluent
BOD5	All Year	30	MAvg Conc	mg/L	Monthly	Grab	Effluent
D.O.	All Year	1	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	Monthly	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	Monthly	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	0.5	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6	DMin Conc	SU	2/Week	Grab	Effluent

Tables 6-7. Permit Limits for East High School

EFO Comments:

No issues.

TN0056669 Misty Waters Homeowners Association

Discharger rating: Minor
City: Blountville
County: Sullivan
EFO Name: Johnson City
Issuance Date: 10/31/02
Expiration Date: 10/31/07
Receiving Stream(s): Mile 0.2 of an unnamed tributary which enters 0.4 of
Wagner Creek which is a tributary of the South Fork of the
Holston River (Boone Lake) at mile 22.6
HUC-12: 060101020403
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Activated sludge

Permit Limits:

No Limits

EFO Comments:

Misty Waters Homeowners Assn. is in the process of hooking up to Johnson City POTW.

6.4.B. Industrial Permits

TN0067504 Maymead Materials, Inc.

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 10/31/02
Expiration Date: 10/31/07
Receiving Stream(s): Unnamed tributary at mile 1.5 to Whitetop Creek at mile 3.8
HUC-12: 060101020502
Effluent Summary: Treated groundwater from Outfall 001
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		DMax Load	MGD	Monthly	Instantaneous	Effluent
Flow	All Year		MAvg Load	MGD	Monthly	Instantaneous	Effluent
Oil and Grease (Freon EM)	All Year	15	DMax Conc	mg/L	Monthly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	10	MAvg Conc	mg/L	Monthly	Grab	Effluent
Oil and Grease Visual	All Year		DMax Load	YES=1 NO=0	2/Week	Visual	Effluent
TPH DRO	All Year		DMax Conc	mg/L	Quarterly	Grab	Effluent
TPH DRO	All Year		MAvg Conc	mg/L	Quarterly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Monthly	Grab	Effluent

Tables 6-8. Permit Limits for Maymead Materials, Inc.

EFO Comments:

Asphalt Paving Mixtures and Blocks. The plant has an oil/water separator for treatment. During my September 24, 2004, Compliance Evaluation Inspection, the facility inquired about the NPDES permit being terminated. The response to their inquiry was, "Since the December 2003 and January 2004 oil and grease sample results of 24 mg/l and 8 mg/l revealed that an oil and grease residue is still in the discharge, treatment and monitoring for the discharge must be maintained. Also, the Total Petroleum Hydrocarbons-Diesel Range Organics June 2004 result was 0.1 mg/l. Therefore, the NPDES permit cannot be terminated at this time."

TN0056898 Magic Wand Car Wash

Discharger rating: Minor
City: Kingsport
County: Sullivan
EFO Name: Johnson City
Issuance Date: 12/31/02
Expiration Date: 12/31/07
Receiving Stream(s): Horse Creek at mile 9.8
HUC-12: 060101020603
Effluent Summary: Treated process wastewater from Outfall 001
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	DMax Conc	mg/L	Quarterly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	30	DMax Conc	mg/L	Monthly	Grab	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Monthly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Monthly	Grab	Effluent

Tables 6-9. Permit Limits for Magic Wand Car Wash.

EFO Comments:

No issues.

TN0064106 Unisys Corp. - Earhart Site

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 6/30/05
Expiration Date: 6/30/07
Receiving Stream(s): Unnamed tributary to Back Creek at mile 1.4 to Beaver Creek
HUC-12: 060101020502
Effluent Summary: Treated groundwater from Outfall 001
Treatment system: -

Segment	TN06010102042_0200
Name	Back Creek
Size	14.1
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Recreation (Non-Supporting), Irrigation (Supporting), Fish and Aquatic Life (Non-Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Escherichia coli, Sedimentation/Siltation, Physical substrate habitat alterations, Nitrates
Sources	Grazing in Riparian or Shoreline Zones, Channelization, Discharges from Municipal Separate Storm Sewer Systems (MS4), Unrestricted Cattle Access

Tables 6-10. Stream Segment Information for Unisys Corp. – Earhart Site.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	45	DMax Conc	mg/L	Quarterly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	30	DMax Conc	mg/L	Monthly	Grab	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Monthly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Monthly	Grab	Effluent

Tables 6-11. Permit Limits for Unisys Corp. - Earhart Site.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 2 Toluene

EFO Comments:

No issues.

6.4.B. Water Treatment Plant Permits

TN0073709 Chinquapin Grove Utility District Water Treatment Plant

Discharger rating: Minor
City: Bluff City
County: Sullivan
EFO Name: Johnson City
Issuance Date: 9/30/02
Expiration Date: 9/29/07
Receiving Stream(s): Webb Spring Branch to Dry Creek at mile 0.5
HUC-12: 060101020402
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Alum, polymer, chlorine

Segment	TN06010102012_0300
Name	Unnamed Trib to South Fork Holston River
Size	3.89
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Alteration in stream-side or littoral vegetative covers, Sedimentation/Siltation, Escherichia coli
Sources	Grazing in Riparian or Shoreline Zones

Tables 6-12. Stream Segment Information for Chinquapin Grove Utility District WTP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	0.75	DMax Conc	mg/L	Monthly	Grab	Effluent
Flow	All Year		DMax Load	MGD	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Monthly	Grab	Effluent
TRC	All Year	0.019	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Monthly	Grab	Effluent

Table 6-13. Permit Limits for Chinquapin Grove Utility District WTP.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 5 Settleable Solids
- 1 Aluminum

EFO Comments:

No issues.

TN0074292 Bristol Water Treatment Plant

Discharger rating: Minor
City: Bristol
County: Sullivan
EFO Name: Johnson City
Issuance Date: 9/30/02
Expiration Date: 9/29/07
Receiving Stream(s): South Fork Holston River at mile 35.6 (Boone Reservoir)
HUC-12: 060101020401
Effluent Summary: Filter backwash and sedimentation basin washdown water through Outfall 001
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	0.75	DMax Conc	mg/L	Monthly	Grab	Effluent
Fe (T)	All Year	2	DMax Conc	mg/L	Monthly	Grab	Effluent
Flow	All Year		DMax Load	MGD	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Monthly	Grab	Effluent
TRC	All Year	0.019	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Monthly	Grab	Effluent

Table 6-14. Permit Limits for Bristol WTP.

EFO Comments:
 None

TN0075884 Bristol/Bluff City Utility District Water Treatment Plant

Discharger rating: Minor
City: Bluff City
County: Sullivan
EFO Name: Johnson City
Issuance Date: 1/31/06
Expiration Date: 10/31/07
Receiving Stream(s): Thomas Creek at mile 0.4 to South Fork Holston River
HUC-12: 060101020402
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Polyaluminum chloride (GPAC 2800), Sodium hypochlorite (Aqua Guard) hydrofluosilicic acid (H₂SiF₆), sodium ortho/polyphosphate (F-35)

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year	1	DMax Conc	mg/L	Weekly	Grab	Effluent
Al (T)	All Year	0.29	MAvg Conc	mg/L	Weekly	Grab	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Weekly	Grab	Effluent
TRC	All Year	0.019	DMax Conc	mg/L	Weekly	Grab	Effluent
TRC	All Year	0.011	MAvg Conc	mg/L	Weekly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Weekly	Grab	Effluent
TSS	All Year	7	MAvg Conc	mg/L	Weekly	Grab	Effluent
pH	All Year	8.5	DMax Conc	SU	Weekly	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Weekly	Grab	Effluent

Table 6-15. Permit Limits for Bristol/Bluff City Utility District WTP.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 2 pH
- 2 Settleable Solids
- 25 Chlorine
- 4 TSS
- 10 Aluminum

EFO Comments:

None